

Williams[®]

16P-3002-103
December, 1981

STARGATE

DRAWING SET



FOR SERVICE...
NOTE NEW TOLL-FREE
TELEPHONE NUMBERS:

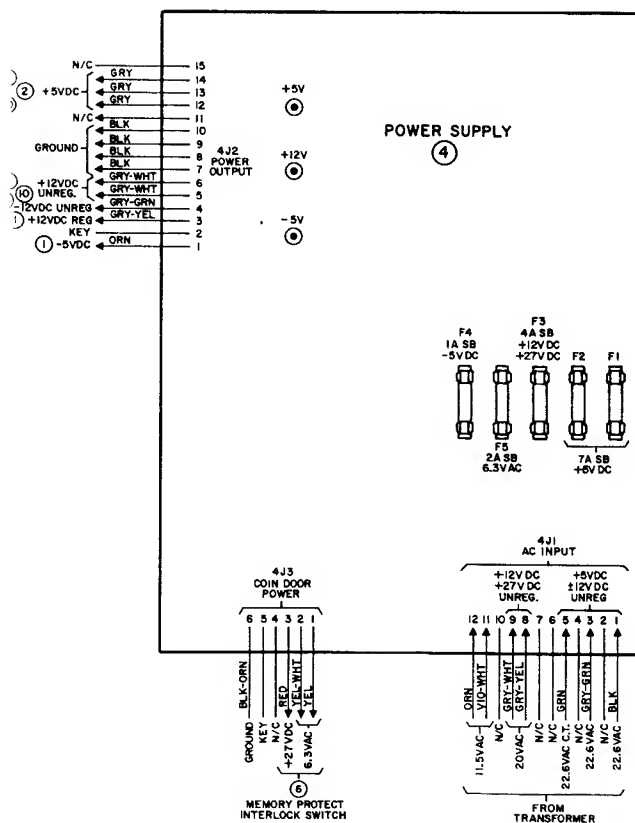
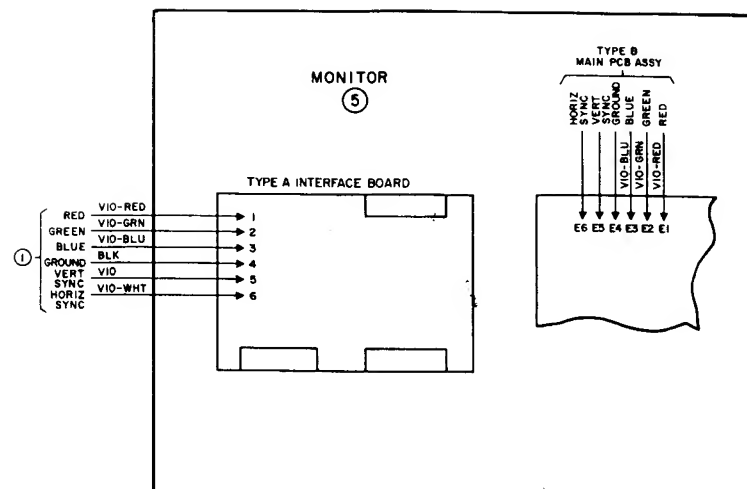
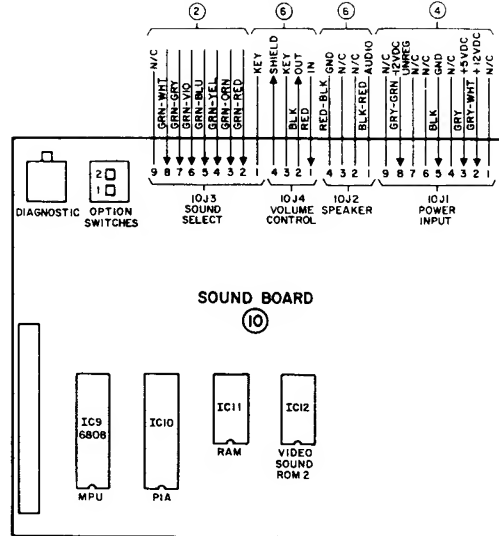
800-621-1253
IN ILLINOIS CALL:
800-572-1324

Williams[®] 
ELECTRONICS, INC.

3401 N. California Ave., Chicago, IL 60618
Cable Address: WILCOIN, CHICAGO
(312) 267-2240

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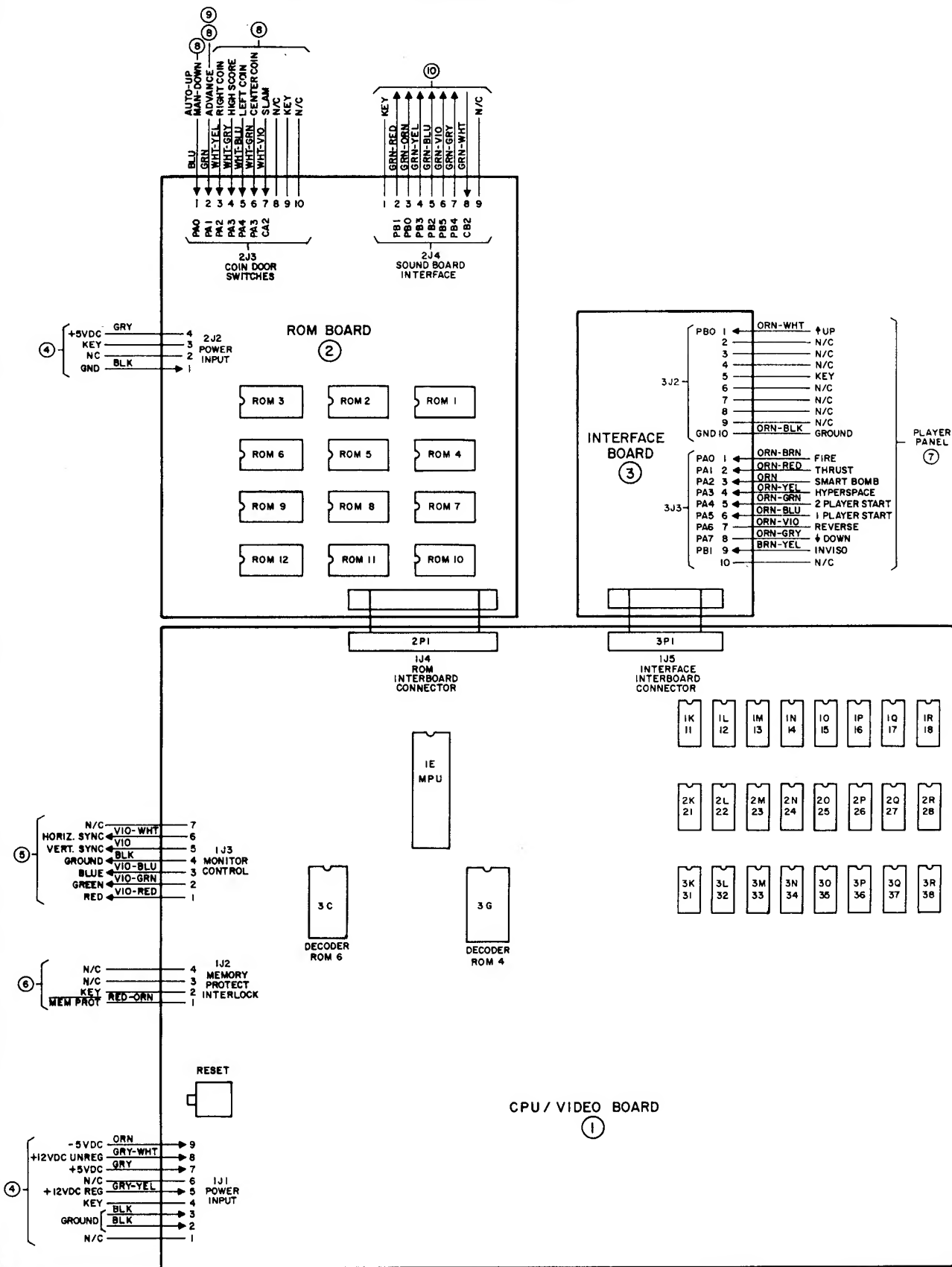
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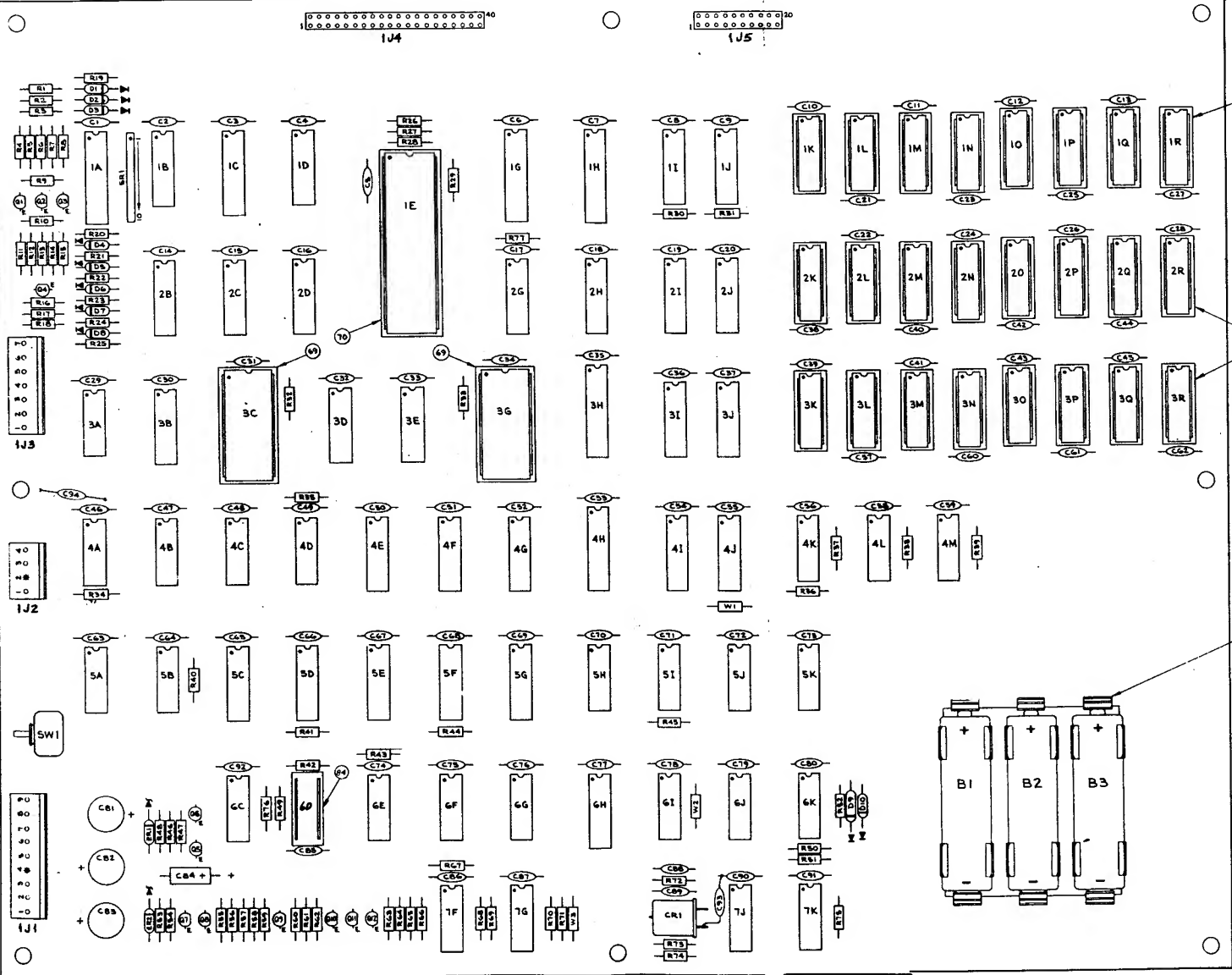
- ① CPU / VIDEO BOARD
- ② ROM BOARD
- ③ INTERFACE BOARD
- ④ POWER SUPPLY
- ⑤ MONITOR
- ⑥ CABINET
- ⑦ PLAYER PANEL
- ⑧ COIN DOOR
- ⑨ CASH BOX
- ⑩ SOUND BOARD

SIDE PANEL

COMPONENT DOOR

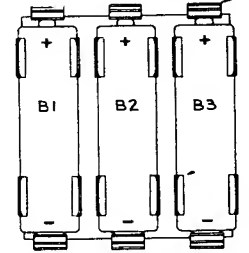
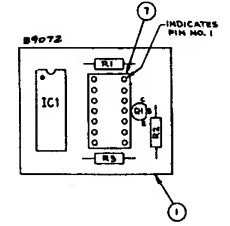


A B C D E F G H I J K L M N O P Q R



B9072 BILL OF MATERIAL

| ITEM NO. | PART NO. | PART DESIGNATION | DESCRIPTION | REQ'D. NO. |
|----------|---------------|------------------|-----------------------------------|------------|
| 1 | 3770-09810-00 | | BASE P.C. BOARD | 1 |
| 2 | 5280-09011-00 | IC1 | 7410 TRIPLE 5-INPUT NAND | 1 |
| 3 | 5160-09338-00 | Q1 | 2N4401, TO-92 TRANSISTOR, NPN | 1 |
| 4 | 5010-09358-00 | R1 | RESISTOR, C.F. 1K ± 5% 1/4 WATT | 1 |
| 5 | 5010-08991-00 | R2 | RESISTOR, C.F. 4.7K ± 5% 1/4 WATT | 1 |
| 6 | 5010-09034-00 | R3 | RESISTOR, C.F. 10K ± 5% 1/4 WATT | 1 |
| 7 | 5701-09812-00 | | 14 PIN I.C. HEADER | 1 |



| BILL OF MATERIAL | | | | | ITEM NO. | PART NO. | PART DESIGNATION | DESCRIPTION | REQ'D. NO. |
|------------------|---------------|--------------------------------|---|----|----------|---------------|--------------------------------|---|------------|
| 1 | 5170-09656-00 | | BARE P.C. BOARD 8V. A | 1 | 49 | 5010-09001-00 | R2, R21, R24 | RESISTOR, C.F. 330 OHM 5% 1/4 W. | 3 |
| 2 | 5280-09073-00 | 4B | 7400 QUAD 2-INPUT NAND | 1 | 50 | 5010-09039-00 | R56 | RESISTOR, C.F. 10 OHM 5% 1/4 W. | 1 |
| 3 | 5280-08948-00 | 5H | 7402 QUAD 2-INPUT NOR | 1 | 51 | 5043-09491-00 | C89, C93 | CAPACITOR, AXIAL 22 PFD. 1K V. 210% | 2 |
| 4 | 5281-09218-00 | 7J | 74LS04 HEX. INVERTER | 1 | 52 | 5043-09492-00 | C88 | CAPACITOR, AXIAL 100 PFD. 50 V. 210% | 1 |
| 5 | 5280-09013-00 | 5A, 5K | 7404 HEX. INVERTER | 2 | 53 | 5040-09545-00 | C84 | CAPACITOR, AXIAL 22 MFD. 10 V. 220% | 1 |
| 6 | 5280-08973-00 | 6F | 7408 QUAD AND | 1 | 54 | 5043-09065-00 | C94 | CAPACITOR, AXIAL 470 PFD. 50 V. XTR 220% | 1 |
| 7 | 5280-09011-00 | 4L, 4M, 6I | 7410 TRIPLE 3-INPUT NAND | 3 | 55 | 5043-08996-00 | SEE NOTE #3 | CAPACITOR, AXIAL 1 MFD. 50 V. 220% | 86 |
| 8 | 5280-09475-00 | 3A, 6J | 7411 TRIPLE 3-INPUT AND | 2 | 56 | 5040-09421-00 | C81, C82, C83 | CAPACITOR, RADIAL 100 MFD. 25 V. +50 -10% | 3 |
| 9 | 5280-09530-00 | 5B | 7420 DUAL 4-INPUT NAND | 1 | 57 | 5075-09059-00 | 2R2 | IN5990A 3.9 V. ZENER DIODE | 1 |
| 10 | 5280-09476-00 | 4C | 7421 DUAL 4-INPUT AND | 1 | 58 | 5075-09018-00 | 2R1 | IN5990A 6.8 V. ZENER DIODE | 1 |
| 11 | 5280-09477-00 | 6E, 6G | 7432 QUAD 2-INPUT OR | 2 | 59 | 5070-08919-00 | D1, D2, D3, D4, D5, D6, D7, D8 | 1N4148 DIODE, SILICON | 8 |
| 12 | 5280-09478-00 | 4D, 4K, 6K, 6C, 7F, 7G | 7474 DUAL-D TYPE FLIP-FLOP | 6 | 60 | 5070-09266-00 | D9 | 1N5817 DIODE, SILICON | 1 |
| 13 | 5280-09479-00 | 4A, 5J | 7486 QUAD 2-INPUT EX-OR | 2 | 61 | 5160-08938-00 | Q5, Q6, Q7, Q8, Q9, Q10, Q11 | 2N4401, TO-92 TRANSISTOR, NPN | 7 |
| 14 | 5281-09480-00 | 7K | 74LS107 DUAL J-K FLIP-FLOP | 1 | 62 | 5190-09016-00 | Q1, Q2, Q3, Q4, Q12 | 2N4403, TO-92 TRANSISTOR, PNP | 5 |
| 15 | 5281-09532-00 | 5G | 74LS133 13-INPUT NAND | 1 | 63 | 5520-09495-00 | CRI | 12 MHE CRYSTAL | 1 |
| 16 | 5281-09246-00 | 4G, 6H | 74LS139 DUAL 2 to 4 LINE DECODER | 2 | 64 | | | | |
| 17 | 5280-09481-00 | 3D, 3E, 4E, 4F | 74153 DUAL 4 to 1 DATA INVERT | 4 | 65 | 5880-09022-00 | B1, B2, B3 | BATTERY ALKALINE 1.5 V. (AA) | 3 |
| 18 | 5280-09668-00 | 1I, 1J, 2I, 2J, 3I, 3J, 4I, 4J | 74166 8-BIT SHIFT REGISTER | 8 | 66 | 5881-09021-00 | | BATTERY HOLDER #171 | 1 |
| 19 | | | | | 67 | 5700-09628-00 | | 14-PIN IC SOCKET | 0 |
| 20 | 5281-09308-00 | 1G | 74LS245 OCTAL BUSTRANSCEIVER | 1 | 68 | 5700-09006-00 | | 16-PIN IC SOCKET | 24 |
| 21 | 5281-09485-00 | 2C, 2H | 74LS257 QUAD DATA MUX. | 2 | 69 | 5700-09004-00 | | 24-PIN IC SOCKET | 2 |
| 22 | 5370-08989-00 | 1D, 2D, 2G, 3B | 8T97 HEX. TS BUFFER | 0 | 70 | 5700-08985-00 | | 40-PIN IC SOCKET | 1 |
| | 5281-09385-00 | | 74LS367 HEX BUS DRIVER | 4 | 71 | 5791-09437-00 | 1J5 | 20 PIN RIBBON CABLE HEADER | 1 |
| 23 | 5281-09486-00 | 1A, 1H, 3H, 4H | 74LS374 OCTAL D-TYPE FLIP-FLOP | 4 | 72 | 5791-09349-00 | 1J4 | 40 PIN RIBBON CABLE HEADER | 1 |
| 24 | A-5342-09695 | 3C | UNIVERSAL VERT. DECODER ROM5 | 1 | 73 | 5791-09028-00 | 1J2 | 4 PIN HEADER 09-65-1041 | 1 |
| 25 | A-5342-09694 | 3G | UNIVERSAL HORIZ. DECODER ROM4 | 1 | 74 | 5791-09497-00 | 1J3 | 7 PIN HEADER 09-65-1071 | 1 |
| 26 | B-9072 | 6D | CMOS MOD. ASSY BOARD | 1 | 75 | 5791-09027-00 | 1J1 | 9 PIN HEADER 09-65-1091 | 1 |
| 27 | 5281-09533-00 | 5I | 74LS393 DUAL 4-BIT BIN. COUNTER | 1 | 76 | 5019-09669-00 | SR1 | RESISTOR, 1K OHM 10 PIN SIP | 1 |
| 28 | 5340-09488-00 | SEE NOTE #1 | 4116 (450 ns ACCESS) 16 K x 1 DYNAMIC RAM | 24 | 77 | 5010-09534-00 | W1, W2, W3 | RESISTOR, C.F. 0 OHM 1/4 WATT | 3 |
| 29 | 5070-06258-00 | D10 | 1N4001 DIODE | 1 | 78 | 5340-09689-00 | 1C | 5114 1K x 4 CMOS STATIC RAM | 1 |
| 30 | 5280-09489-00 | 5C, 5D, 5E, 5F | 9316 4-BIT BIN. COUNTER | 4 | | 5340-09667-00 | | 6514 1K x 4 CMOS STATIC RAM | 0 |
| 31 | 5400-09490-00 | 1E | 6809E MICROPROCESSOR | 1 | 79 | 5281-09488-00 | 1B, 2B | 74LS189 16 x 4 RAM | 0 |
| 32 | 5010-09548-00 | R10, R12, R14 | RESISTOR, C.F. 68 OHM 2% 1/4 W. | 3 | | 5160-09628-00 | | 7489 16 x 4 RAM | 0 |
| 33 | 5010-09036-00 | R65 | RESISTOR, C.F. 100 OHM 5% 1/4 W. | 1 | | 5281-09716-00 | | 74S189 16 x 4 RAM | 0 |
| 34 | 5010-09187-00 | R4, R6, R7, R16, R19, R25 | RESISTOR, C.F. 150 OHM 5% 1/4 W. | 6 | | 5281-09715-00 | | 74LS289 16 x 4 RAM | 2 |
| 35 | 5010-09508-00 | R11, R13, R15 | RESISTOR, C.F. 270 OHM 2% 1/4 W. | 3 | | 5282-09717-00 | | 74S289 16 x 4 RAM | 0 |
| 36 | 5010-09416-00 | R18 | RESISTOR, C.F. 470 OHM 5% 1/4 W. | 1 | 80 | 5641-09571-00 | SW1 | PUSH BUTTON SW. SPST | 0 |
| 37 | 5010-08992-00 | R1, R20, R23 | RESISTOR, C.F. 560 OHM 5% 1/4 W. | 3 | | 5641-09312-00 | | PUSH BUTTON SW. DPDT MOM. | 1 |
| 38 | 5010-09558-00 | R5, R8, R9, R17, R48, R54, R74 | RESISTOR, C.F. 1K OHM 5% 1/4 W. | 7 | 81 | | | | |
| 39 | 5010-09314-00 | R3, R22 | RESISTOR, C.F. 1.2 K OHM 5% 1/4 W. | 2 | 82 | | | | |
| 40 | 5010-08998-00 | R59, R72, R73 | RESISTOR, C.F. 2.2 K OHM 5% 1/4 W. | 3 | 83 | | | | |
| 41 | 5010-08997-00 | R60, R63 | RESISTOR, C.F. 2.7 K OHM 5% 1/4 W. | 2 | 84 | 5700-09013-00 | | 14 PIN IC SOCKET | 1 |
| 42 | 5010-08983-00 | R30, R31, R40, R44, R55 | RESISTOR, C.F. 3.3 K OHM 5% 1/4 W. | 5 | | | | | |
| 43 | 5010-08991-00 | SEE NOTE #2 | RESISTOR, C.F. 4.7 K OHM 5% 1/4 W. | 27 | | | | | |
| 44 | 5010-09034-00 | R46, R53 | RESISTOR, C.F. 10 K OHM 5% 1/4 W. | 2 | | | | | |
| 45 | 5010-08774-00 | R47, R55, R57, R62 | RESISTOR, C.F. 22 K OHM 5% 1/4 W. | 4 | | | | | |
| 46 | 5010-09113-00 | R61 | RESISTOR, C.F. 33 K OHM 5% 1/4 W. | 1 | | | | | |
| 47 | 5010-09359-00 | R64 | RESISTOR, C.F. 47 K OHM 5% 1/4 W. | 1 | | | | | |
| 48 | 5010-09442-00 | R42, R49 | RESISTOR, C.F. 330 K OHM 5% 1/4 W. | 2 | | | | | |

NOTES:

1. 4116: 1K, 1L, 1M, 1N, 1O, 1P, 1Q, 1R, 2K, 2L, 2M, 2N, 2O, 2P, 2Q, 2R, 3K, 3L, 3M, 3N, 3O, 3P, 3Q, 3R

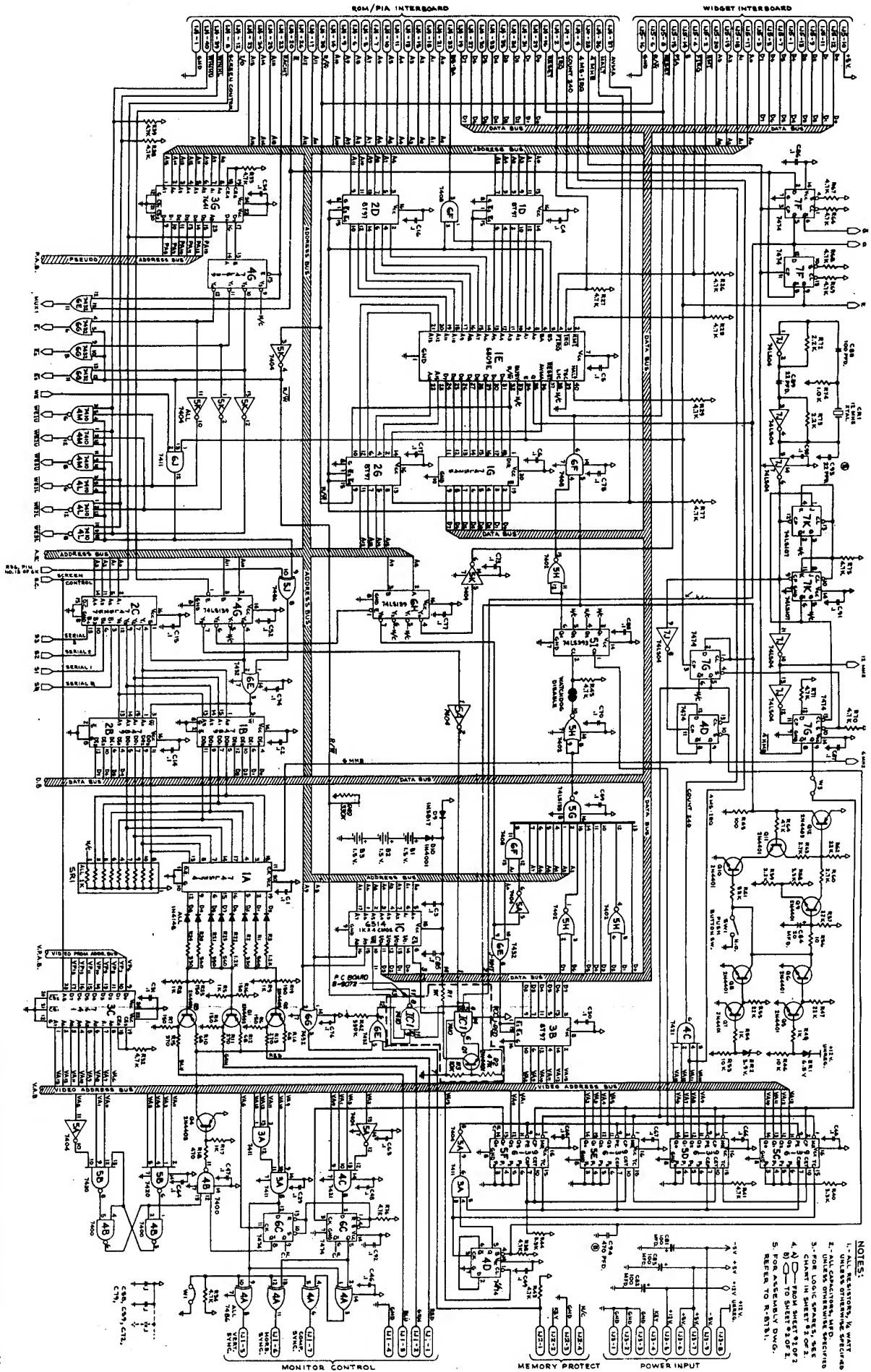
2. 47K 4 RESISTOR:

R26, R27, R28, R29, R32, R33, R35, R36, R37, R38, R39, R41, R43, R45, R50, R51, R52, R66, R67, R68, R69, R70, R71, R75, R84, R76, R77

3. J MFD. CAPACITORS:

C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C85, C86, C87, C90, C91, C92

4. FOR SCHEMATIC REFER TO 1G-8809

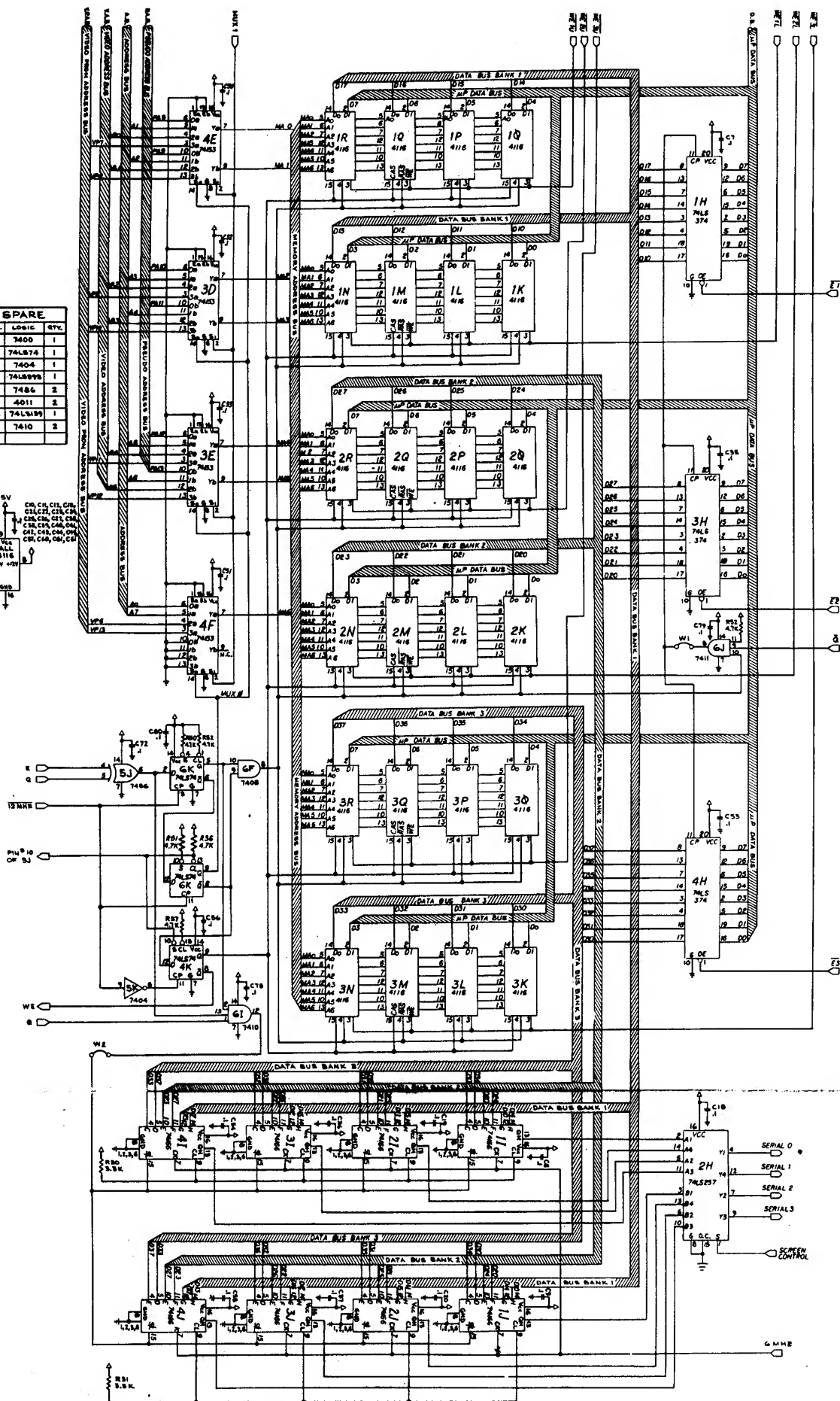
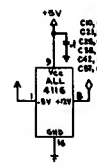


R8948 CPU Board Logic Diagram (Sheet 1 of 2)

NOTES:

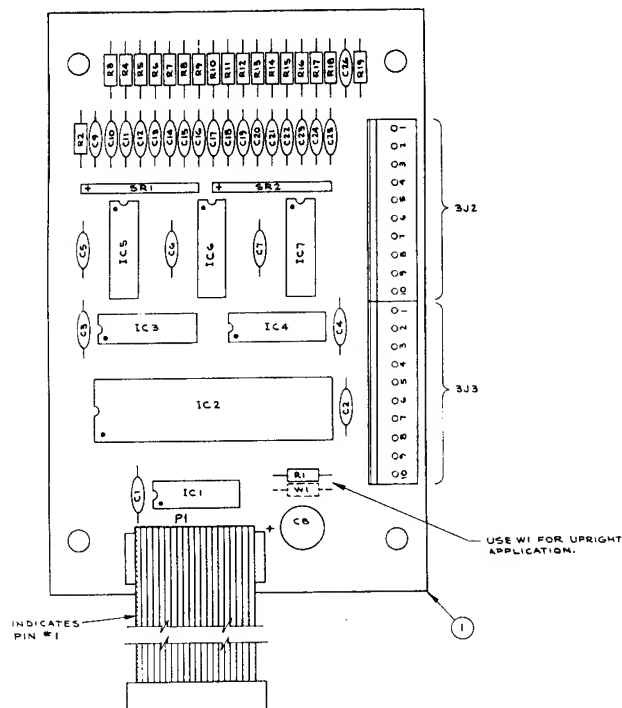
1. ALL RESISTORS, IN OHMS, UNLESS OTHERWISE SPECIFIED
2. ALL CAPACITORS, IN P.F., UNLESS OTHERWISE SPECIFIED
3. FOR LOGIC SYMBOLS, SEE CHART IN SHEET 2 OF 2
4. A - FROM SHEET 2 OF 2
5. TO SHEET 2 OF 2
6. FROM ASSEMBLY DWG.
7. RETURN TO 100% VOLTAGE

| SPARE | | |
|-------|---------|------|
| LOC. | LOGIC | QTY. |
| 4B | 7400 | 1 |
| 4K | 74LS74 | 1 |
| 5A | 7404 | 1 |
| 5I | 74LS99B | 1 |
| 5J | 7486 | 2 |
| 6D | 4011 | 2 |
| 6H | 74LS159 | 1 |
| 6I | 7410 | 2 |



BILL OF MATERIAL

| ITEM NO. | PART NO. | PART DESIGNATION | DESCRIPTION | NO. REQ'D |
|----------|---------------|------------------|---|-----------|
| 1 | 5772-09680-00 | | BASE P.C. BOARD | 1 |
| 2 | 5450-08972-00 | IC2 | 6821 PIA | |
| 3 | 5310-08975-00 | IC6, IC7, IC7 | 4049 CMOS HEX INVERTER | 3 |
| 4 | 5260-09018-00 | IC4 | 7404 HEX INVERTER | |
| 5 | 5261-09018-00 | IC5, IC6 | 74LS175 QUAD DATA MULTIPLEXER | 2 |
| 6 | 5018-09361-00 | SR1, SR2 | 4.7K OHM 9 RES. 10 PIN SIP | 2 |
| 7 | 5018-09368-00 | R2 THRU R19 | RESISTOR, C.F. 1K OHM 5% 1/4 WATT | 18 |
| 8 | 5010-09018-00 | RI | RESISTOR, C.F. 4.7K OHM 5% 1/4 WATT | 1 |
| 9 | 5010-09034-00 | W1 | RESISTOR, C.F. 0.0 OHM 5% 1/4 WATT | 1 |
| 10 | 5048-09068-00 | C4 THRU C26 | CAPACITOR, CERAMIC DISC 400 PFD. 50V. XTR 120% | 18 |
| 11 | 5040-09421-00 | CB | CAPACITOR, ELECT. RADIAL 1000 PFD. 28VOLT. +50-10% XTR 120% | 1 |
| 12 | 5048-08980-00 | C1 THRU C7 | CAPACITOR, CERAMIC DISC 20 MFD. 50V. +50-120% | 7 |
| 13 | 5775-09440-00 | PH1 | 20 PIN RIBBON CABLE ASSY | 1 |
| 14 | 5781-09444-00 | 3J2, 3J3 | 10 PIN HEADER 09-65-1101 | 2 |

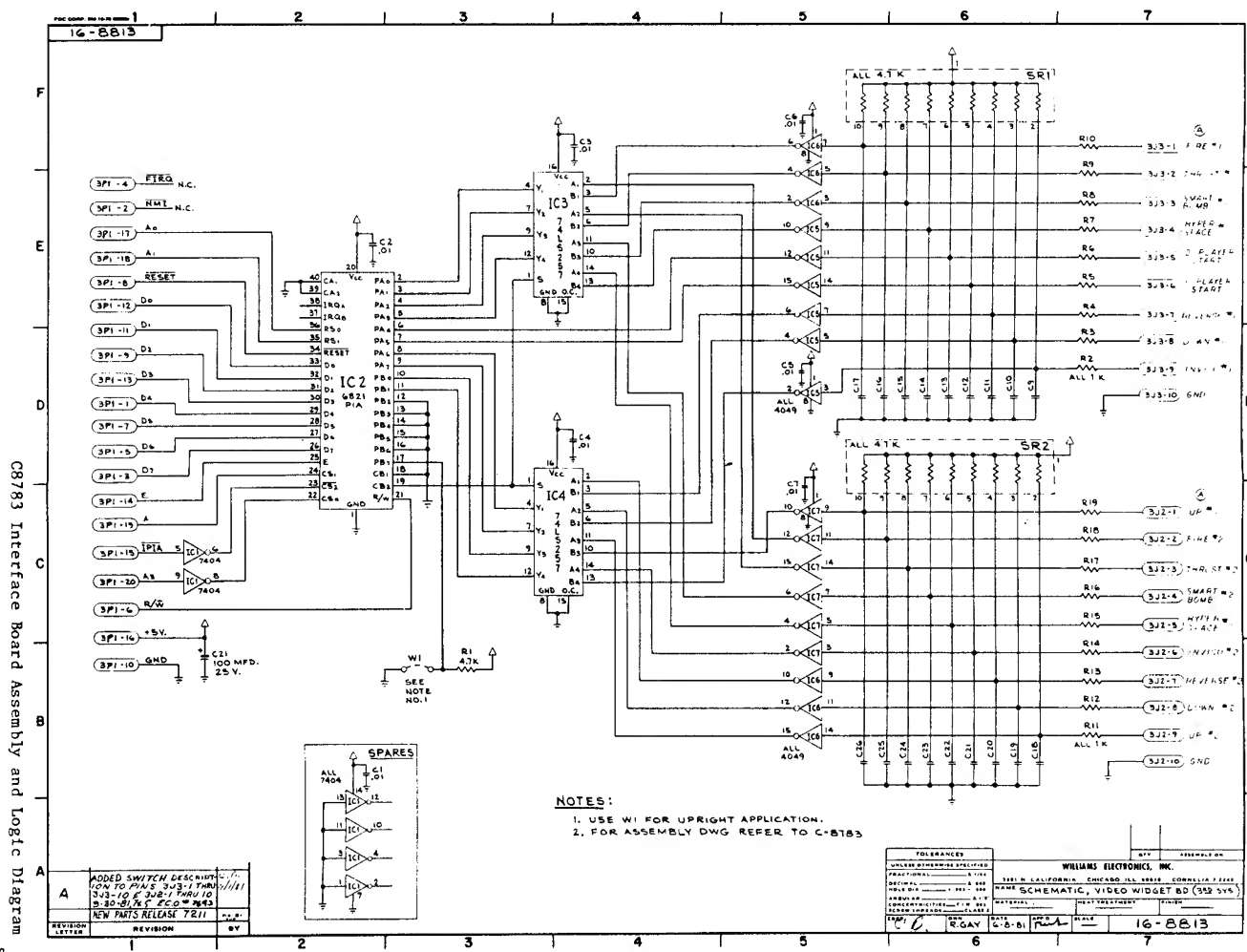


- USE W1 FOR UPRIGHT APPLICATION.

INDICAT
BIN #1

| | | |
|----------|------------------------|--------------|
| | NEW PARTS RELEASE 7212 | 100 41-01 |
| REVISION | REVISION | BY |

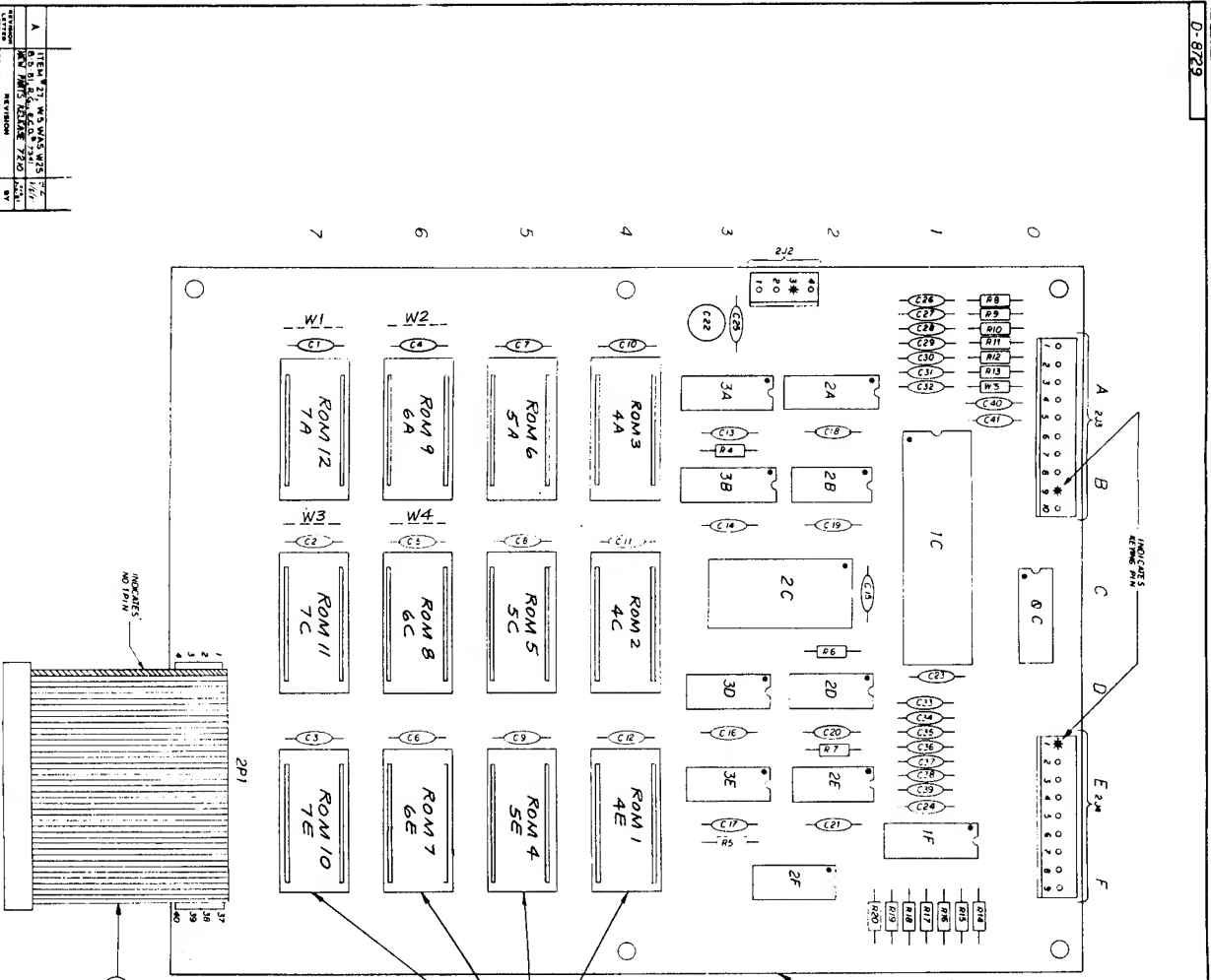
| | | | |
|----------------------------|--|--|--|
| TOLERANCES | | 1 D-8418 | |
| UNLESS OTHERWISE SPECIFIED | | MFG ASSEMBLY | |
| FRACTIONAL 1/4 1/8 1/16 | | WILLIAMS ELECTRONICS, INC. | |
| DECIMAL .005 .010 .015 | | 3801 N. CALIFORNIA CHICAGO IL 60616 CORNELIA 72246 | |
| ANGULAR 1/2° 1° 1 1/2° | | PART VIDEO WIDGET ASSEM (338) SYSTEM | |
| SURFACE FINISH 24 HOURS | | MATERIAL NONE HEAT TREATMENT NONE FINISH NONE | |
| SECRETARY SIGNATURE | | DATE 7-4-81 TIME 2:11 C-8783 | |



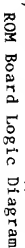
- NOTES:
1. USE W1 FOR UPRIGHT APPLICATION.
 2. FOR ASSEMBLY DWG REFER TO C-8782

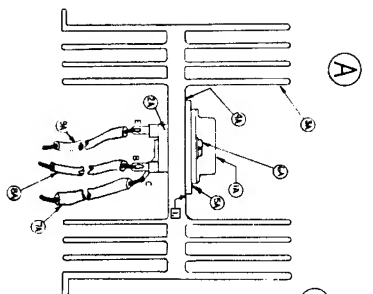
| | | |
|----------|---|-----------------|
| A | ADDED SWITCH DESCRIPTION TO PINS 3J3-1 THRU 3J3-10 & 3J2-1 THRU 10 5-30-81 X5 ECO #2693 | C. P. 5/1/81 |
| | NEW PARTS RELEASE 7211 | D. B. |
| REVISION | REVISION | BY |

| | | | | | |
|----------------------------|--|--|--|------------|--|
| TOLERANCES | | QTY | | ASSEMBLION | |
| UNLESS OTHERWISE SPECIFIED | | WILLIAMS ELECTRONICS, INC. | | | |
| FRACTIONS | | 3351 N. CALIFORNIA CHICAGO, ILL. 60618 CONNELIA F 2249 | | | |
| DECIMALS | | NAME SCHEMATIC, VIDEO WIDGET BD (352 SYS | | | |
| HOLE DIA. | | MATERIAL | | | |
| HOLE DIA. | | HEAT TREATMENT | | | |
| CONCENTRICITY | | FINISH | | | |
| SURFACE FINISH | | DATE | | | |
| BY | | APPROVED | | | |
| R. GAY | | 16-8813 | | | |



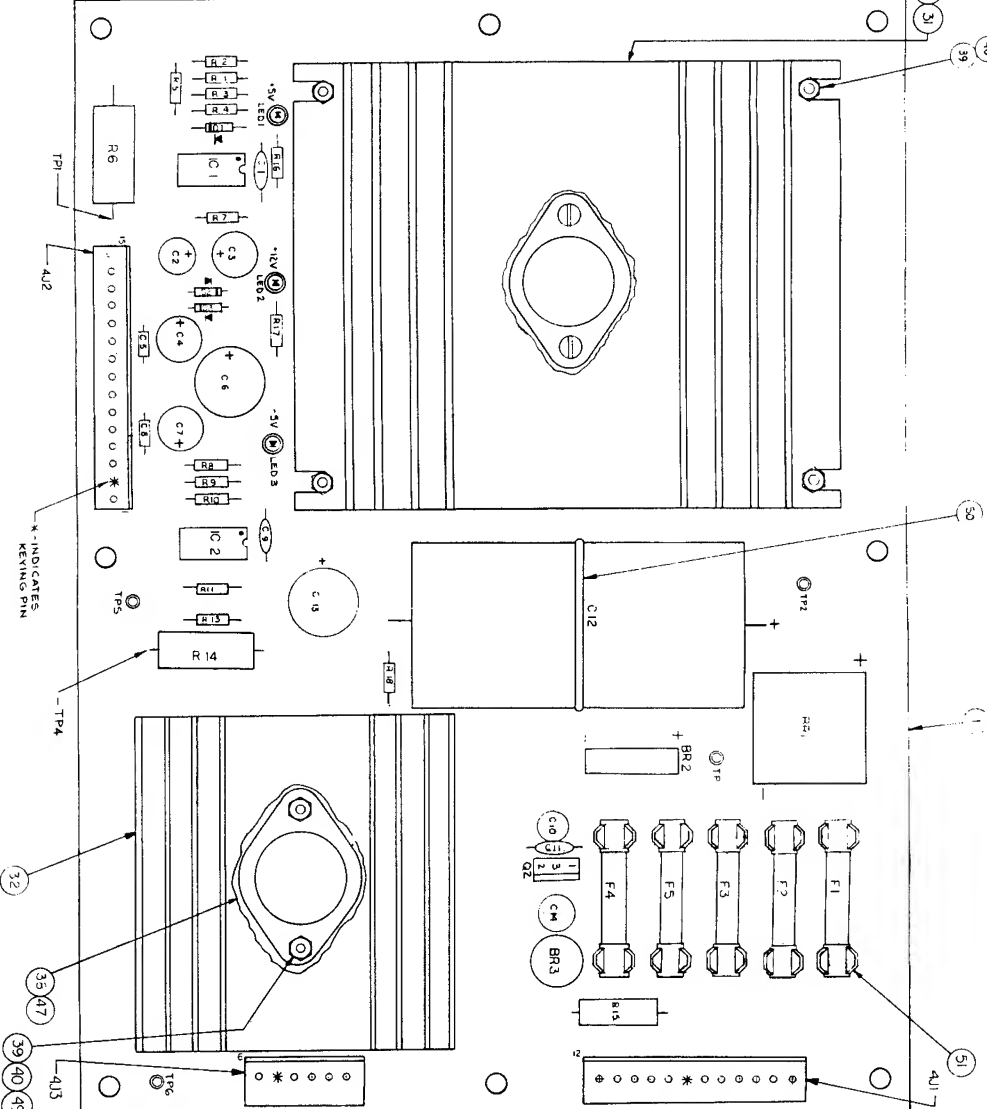
| PART DESIGNATION | |
|------------------|--------------|
| GAUNE | STAGGATE |
| 4A | A-5443-07101 |
| 4B | A-5443-07102 |
| 4C | A-5443-07103 |
| 4D | A-5443-07104 |
| 4E | A-5443-07105 |
| 4F | A-5443-07106 |
| 4G | A-5443-07107 |
| 4H | A-5443-07108 |
| 4I | A-5443-07109 |
| 4J | A-5443-07110 |
| 4K | A-5443-07111 |
| 4L | A-5443-07112 |
| 4M | A-5443-07113 |
| 4N | A-5443-07114 |
| 4O | A-5443-07115 |
| 4P | A-5443-07116 |
| 4Q | A-5443-07117 |
| 4R | A-5443-07118 |
| 4S | A-5443-07119 |
| 4T | A-5443-07120 |
| 4U | A-5443-07121 |
| 4V | A-5443-07122 |
| 4W | A-5443-07123 |
| 4X | A-5443-07124 |
| 4Y | A-5443-07125 |
| 4Z | A-5443-07126 |
| 4AA | A-5443-07127 |
| 4AB | A-5443-07128 |
| 4AC | A-5443-07129 |
| 4AD | A-5443-07130 |
| 4AE | A-5443-07131 |
| 4AF | A-5443-07132 |
| 4AG | A-5443-07133 |
| 4AH | A-5443-07134 |
| 4AI | A-5443-07135 |
| 4AJ | A-5443-07136 |
| 4AK | A-5443-07137 |
| 4AL | A-5443-07138 |
| 4AM | A-5443-07139 |
| 4AN | A-5443-07140 |
| 4AO | A-5443-07141 |
| 4AP | A-5443-07142 |
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| 4AS | A-5443-07145 |
| 4AT | A-5443-07146 |
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| 4AV | A-5443-07148 |
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| 4AX | A-5443-07150 |
| 4AY | A-5443-07151 |
| 4AZ | A-5443-07152 |
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| 4BE | A-5443-07157 |
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| 4BG | A-5443-07159 |
| 4BH | A-5443-07160 |
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| 4BJ | A-5443-07162 |
| 4BK | A-5443-07163 |
| 4BL | A-5443-07164 |
| 4BM | A-5443-07165 |
| 4BN | A-5443-07166 |
| 4BO | A-5443-07167 |
| 4BP | A-5443-07168 |
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| 4CB | A-5443-07180 |
| 4CC | A-5443-07181 |
| 4CD | A-5443-07182 |
| 4CE | A-5443-07183 |
| 4CF | A-5443-07184 |
| 4CG | A-5443-07185 |
| 4CH | A-5443-07186 |
| 4CI | A-5443-07187 |
| 4CJ | A-5443-07188 |
| 4CK | A-5443-07189 |
| 4CL | A-5443-07190 |
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| 4CN | A-5443-07192 |
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| 4CP | A-5443-07194 |
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| 4CR | A-5443-07196 |
| 4CS | A-5443-07197 |
| 4CT | A-5443-07198 |
| 4CU | A-5443-07199 |
| 4CV | A-5443-07200 |
| 4CW | A-5443-07201 |
| 4CX | A-5443-07202 |
| 4CY | A-5443-07203 |
| 4CZ | A-5443-07204 |
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| 4DB | A-5443-07206 |
| 4DC | A-5443-07207 |
| 4DD | A-5443-07208 |
| 4DE | A-5443-07209 |
| 4DF | A-5443-07210 |
| 4DG | A-5443-07211 |
| 4DH | A-5443-07212 |
| 4DI | A-5443-07213 |
| 4DJ | A-5443-07214 |
| 4DK | A-5443-07215 |
| 4DL | A-5443-07216 |
| 4DM | A-5443-07217 |
| 4DN | A-5443-07218 |
| 4DO | A-5443-07219 |
| 4DP | A-5443-07220 |
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| 4DR | A-5443-07222 |
| 4DS | A-5443-07223 |
| 4DT | A-5443-07224 |
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| 4HS | A-5443-07327 |
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| 4KP | A-5443-07402 |
| 4KQ | A-5443-07403 |
| 4KR | A-5443-07404 |
| 4KS | A-5443-07405 |
| 4KT | A-5443-07406 |
| 4KU | A-5443-07407 |
| 4KV | A-5443-07408 |
| 4KW | A-5443-07409 |
| 4KX | A-5443-07410 |
| 4KY | A-5443-07411 |
| 4KZ | A-5443-07412 |
| 4LA | A-5443-07413 |
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| 4MG | A-5443-07445 |
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| 4MO | A-5443-07452 |
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| 4MQ | A-5443-07454 |
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| 4MZ | A-5443-07463 |
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| 4NW | A-5443-07486 |
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| 4NY | A-5443-07488 |
| 4NZ | A-5443-07489 |
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| 4OB | A-5443-07491 |
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| 4OD | A-5443-07493 |
| 4OE | A-5443-07494 |
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| 4OP | A-5443-07505 |
| 4OQ | A-5443-07506 |
| 4OR | A-5443-07507 |
| 4OS | A-5443-07508 |
| 4OT | A-5443-07509 |
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| 4OW | A-5443-07512 |
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| 4OY | A-5443-07514 |
| 4OZ | A-5443-07515 |
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| 4PB | A-5443-07517 |
| 4PC | A-5443-07518 |
| 4PD | A-5443-07519 |
| 4PE | A-5443-07520 |
| 4PF | A-5443-07521 |
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| 4PH | A-5443-07523 |
| 4PI | A-5443-07524 |
| 4PJ | A-5443-07525 |
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| 4PL | A-5443-07527 |
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| 4PO | A-5443-07530 |
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| 4PQ | A-5443-07532 |
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| 4PU | A-5443-07536 |
| 4PV | A-5443-07537 |
| 4PW | A-5443-07538 |
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| 4PY | A-5443-07540 |
| 4PZ | A-5443-07541 |
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| 4QB | A-5443-07543 |
| 4QC | A-5443-07544 |
| 4QD | A-5443-07545 |
| 4QE | A-5443-07546 |
| 4QF | A-5443-07547 |



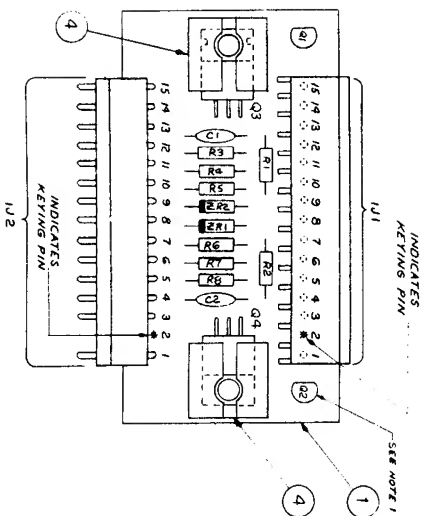
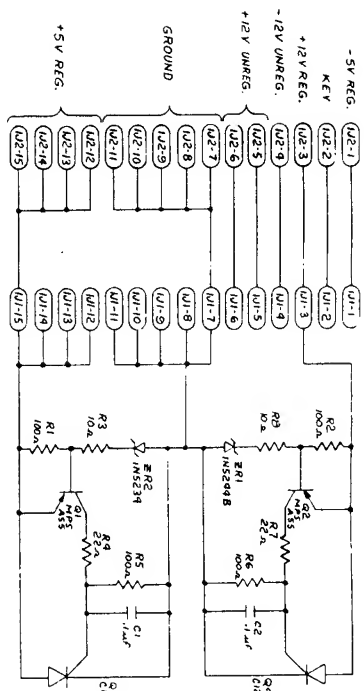


| ITEM NO. | PART NO. | DESCRIPTION | REQD NO. |
|----------|--------------|----------------|----------|
| 1A | 3442-0943-00 | TRANSISTOR NPN | 1 |
| 2A | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 3A | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 4A | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 5A | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 6A | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 7A | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 8A | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 9A | 3700-0943-00 | TRANSISTOR PNP | 1 |

NOTES:
 1. SEE DIMENSIONS AND TOLERANCES.
 2. ALL DIMENSIONS ARE IN INCHES.
 3. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.
 4. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.
 5. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.



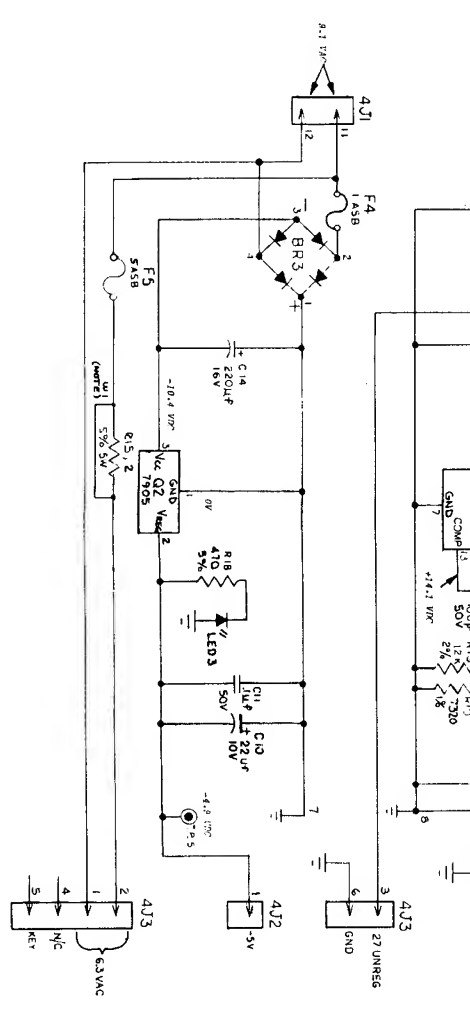
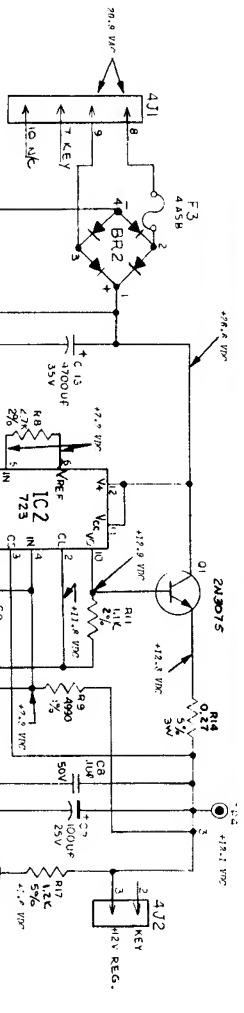
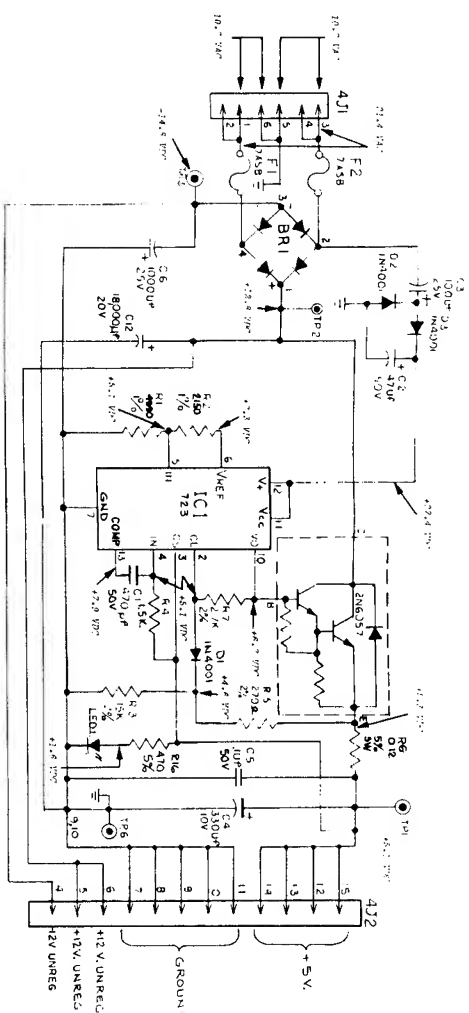
| ITEM NO. | PART NO. | DESCRIPTION | REQD NO. |
|----------|--------------|----------------|----------|
| 1 | 3442-0943-00 | TRANSISTOR NPN | 1 |
| 2 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 3 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 4 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 5 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 6 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 7 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 8 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 9 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 10 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 11 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 12 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 13 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 14 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 15 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 16 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 17 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 18 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 19 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 20 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 21 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 22 | 3700-0943-00 | TRANSISTOR PNP | 1 |
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| 31 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 32 | 3700-0943-00 | TRANSISTOR PNP | 1 |
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| 46 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 47 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 48 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 49 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 50 | 3700-0943-00 | TRANSISTOR PNP | 1 |
| 51 | 3700-0943-00 | TRANSISTOR PNP | 1 |



NOTES:
1. OBSERVE POLARITY OF CAPACITORS.
2. DIMENSIONS AND POSITION OF TRANSISTORS.
3. REFERENCE DIMS: SCHEMATIC 16-8810

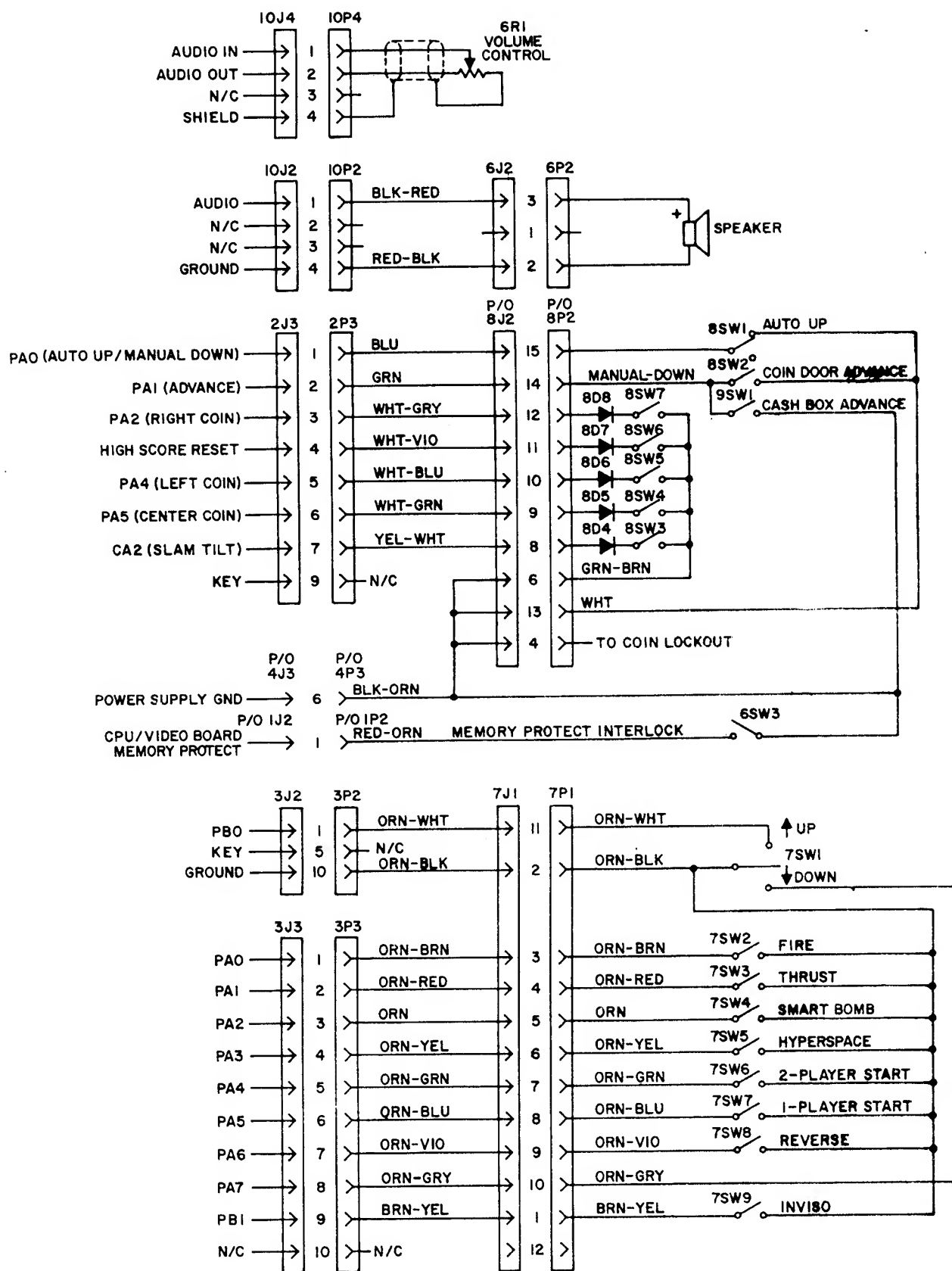
BILL OF MATERIALS

| ITEM NO. | PART NO. | DESCRIPTION | QTY |
|----------|----------|-----------------------------|-----|
| 1 | 5773-00 | RIGHT ANGLE PC BOARD | 1 |
| 2 | 5792-00 | HEADER CONNECTOR, 15 PIN | 1 |
| 3 | 5791-00 | HEADER CONNECTOR, 15 PIN | 1 |
| 4 | 5705-00 | HEAT SINK, ALUMINUM, 1/4" W | 2 |
| 5 | 5705-00 | HEAT SINK, ALUMINUM, 1/4" W | 2 |
| 6 | 5705-00 | HEAT SINK, ALUMINUM, 1/4" W | 2 |
| 7 | 5130-00 | SCR 122F (100V) | 2 |
| 8 | 5130-00 | TRANSISTOR | 2 |
| 9 | 5130-00 | TRANSISTOR | 2 |
| 10 | 5075-00 | TRANSISTOR, 1/4" W | 1 |
| 11 | 5075-00 | TRANSISTOR, 1/4" W | 1 |
| 12 | 5075-00 | TRANSISTOR, 1/4" W | 1 |
| 13 | 5075-00 | TRANSISTOR, 1/4" W | 1 |
| 14 | 5075-00 | TRANSISTOR, 1/4" W | 1 |



Power Supply Board Schematic Diagram and
Overvoltage Protection Board





Cabinet Wiring Diagram

BILL OF MATERIAL

| ITEM NO. | PART NO. | PART DESIGNATION | DESCRIPTION | REQ'D. NO. |
|----------|----------------|--|--|------------|
| 1 | 01-2 01-146-6 | | BARE P.C. BOARD REV F | 1 |
| 2 | 5370-09156-00 | IC1 | TDA 2002 V AUDIO AMPLIFIER | 1 |
| 3 | 5280-09012-00 | IC2 | 7442 BCD-DEC DECODER | 1 |
| 4 | 5280-09073-00 | IC3 | 7400 QUAD 2 INPUT NAND | 1 |
| 5 | 5280-08973 | IC4 | 7408 QUAD 2 INP. AND GATE | 1 |
| 6 | 5310-09153-00 | IC5 | 4050 BUFFER | 1 |
| 7 | 5310-09154-00 | IC6 | 4068 8 INPUT NAND GATE | 1 |
| 8 | 5310-08971-00 | IC7 | 4069 HEX INVERTER | 1 |
| 9 | 5250-09157-00 | IC8 | 7805 5 VOLT REG. W/TO 220 CASE | 1 |
| 10 | 5430-08972-00 | IC10 | 6821 P.I.A. | 1 |
| 11 | 5340-09003-00 | IC11 | 6810 RAM | 1 |
| 12 | 5371-09152-00 | IC13 | 1408 D/A CONVERTER | 1 |
| 13 | 5160-08938-00 | Q2, Q3, Q4 | 2N4401 NPN TRANSISTOR | 3 |
| 14 | | | | |
| 15 | 5075-09018-00 | ZR1 | 1N5996A 6.8V ZENER DIODE | 1 |
| 16 | | | | |
| 17 | 5100-09357-00) | BR1 | MDA 200/3N253 | 1 |
| | 5100-09158-00) | | BRIDGE RECTIFIER | 0 |
| 18 | 5520-09020-00 | Y1 | 3.58 MHz CRYSTAL | 1 |
| 19 | 5010-08991-00 | R1,R18,R19,R21,R22, R27,R30,R31, R32 R2 thru R10 | RESISTOR, FC, 4.7K OHM, 5% 1/4 WATT | 9 |
| 20 | 5010-09036-00 | R12,R15,R28,R36,R38 | RESISTOR, FC, 100 OHM, 5% 1/4W | 9 |
| 21 | 5010-09358-00 | | RESISTOR, FC, 1K OHM, 5% 1/4W | 5 |
| 22 | 5010-09181-00 | R14 | RESISTOR, FC, 1 OHM, 10% 1/2 WATT | 1 |
| 23 | 5010-09161-00 | R16 | RESISTOR, FC, 2.2 OHM, 5% 1/4 WATT | 1 |
| 24 | 5010-09361-00 | R17 | RESISTOR, FC, 220 OHM, 5% 1/2 WATT | 1 |
| 25 | | | | |
| 26 | 5010-08983-00 | R23, R24, R26 | RESISTOR, FC, 3.3K OHM, 5% 1/4 WATT | 3 |
| 27 | 5010-09179-00 | R25 | RESISTOR, FC, 3.3M OHM, 5% 1/4 WATT | 1 |
| 28 | 5010-09035-00 | R29 | RESISTOR, FC, 47K OHM, 5% 1/4 WATT | 1 |
| 29 | 5010-09034-00 | R33, R35, R37 | RESISTOR, FC, 10K OHM, 5% 1/4 WATT | 3 |
| 30 | 5010-09039-00 | R34 | RESISTOR, FC, 10 OHM, 5% 1/4 WATT | 1 |
| 31 | 5043-08980-00 | C1, C16 thru C23, C31 | CAPACITOR, CER. .01 MFD. 50V. +80%, -20% | 10 |
| 32 | 5043-09065-00 | C2 thru C10 | CAPACITOR, CER. 470 PFD. 50V. +-20% | 9 |
| 33 | 5043-09345-00 | C11 | CAPACITOR, CER. .001 MFD. +-20% 100V. | 1 |
| 34 | 5040-09365-00 | C12, C30, C36 | CAPACITOR, ELECT. 1 MFD. 63V. -10 +50% | 3 |
| 35 | 5043-08996-00 | C13, C24, C35 | CAPACITOR, CER. .1 MFD. 50V. +-20% | 3 |
| 36 | 5040-09165-00 | C14 | CAPACITOR, ELECT. 1,000 MFD. 16V. +-20% | 1 |
| 37 | 5040-09164-00 | C15 | CAPACITOR, ELECT. 470 MFD. 10V. +-20% | 1 |
| 38 | 5040-08986-00 | C25 | CAPACITOR, ELECT. 100 MFD. 10V. +-20% | 1 |
| 39 | 5040-08893-00 | C26 | CAPACITOR, ELECT. 1,000 MFD. 25V. +-20% | 1 |
| 40 | 5040-09376-00 | C27 | CAPACITOR, ELECT. 4700 MFD. 16V. +-20% | 1 |
| 41 | 5043-09180-00 | C28 | CAPACITOR, CER. 47 PFD. 1K V. +-20% | 1 |
| 42 | 5040-09343-00) | C29 | CAPACITOR, ELECT. 10 MFD. 20V | 1 |
| 43 | 5043-09169-00 | C32, C33 | CAPACITOR, CER. DISC, 27 PFD. 1KV. +-10% | 2 |
| 44 | 5041-09163-00 | C34 | CAPACITOR, TANTALUM 2.2 MFD. 15V. +-20% | 1 |
| 45 | 5041-09031-00 | C37 | CAPACITOR, TANTALUM 1 MFD. 25V. +-20% | 1 |
| 46 | 5641-09658-00) | SW1 | MOMENTARY SWITCH SPDT | 1 |
| 47 | 5645-09330-00 | DS1 | 2 STD, DIP SWITCH | 1 |
| 48 | 5731-06314-00 | F1, F2 | 4 AMP SLOW BLOW FUSE | 2 |
| 49 | 5732-09178-00 | | FUSEHOLDER | 4 |
| 50 | 5705-09172-00 | | HEAT SINK THERMALLOY #6072B | 1 |
| 51 | 5705-09173-00 | | HEAT SINK THERMALLOY #6071B | 1 |
| 52 | 5705-09199-00 | | HEAT SINK THERMALLOY #6030 | 1 |
| 53 | 5700-09004-00 | | 24 PIN SOCKET | 1 |
| 54 | 5700-08985-00 | | 40 PIN SOCKET | 1 |
| 55 | 5791-09027-00 | 10J1, 10J3 | 9 PIN MALE CONNECTOR 09-65-1091 | 2 |
| 56 | 5791-09028-00 | 10J2, 10J4 | 4 PIN MALE CONNECTOR 09-65-1041 | 2 |
| 57 | | | | |
| 58 | 4006-01003-06 | | 6-32x3/8" P-PH-S | 3 |
| 59 | 4406-01117-00 | | 6-32 HEX NUT | 3 |
| 60 | 5010-09534-00 | | 0 OHM RESISTOR | A/R |
| 61 | 5824-09248-00 | TP1 THR TP4 | TERMINAL #1502-1 | 4 |
| 62 | 5010-09363-00 | R11 | RESISTOR, FC, 5.6K OHM 5% 1/4 WATT | 1 |
| 63 | | | | |
| 64 | 5019-09362-00 | SR1 | RESISTOR, 4.7K OHM 10 PIN SIP | 1 |
| 65 | 03-7520-1 | | TIE WRAP | 1 |
| 66 | 4703-00007-00 | | #6 EXT. LOCKWASHER | 3 |
| 67 | 20-9229 | | THERMAL COMPOUND | .01 |

NOTES:

1. USE THERMAL COMPOUND BETWEEN IC1 AND IC8, AND HEAT SINKS.

2. CAUTION: AVOID STATIC DISCHARGE DAMAGE TO MOS LOGIC.

3. SYMBOLS SHOWN ON COMPONENTS ARE FOR REFERENCE ONLY.

DO NOT SCREEN OR STAMP.

4. OBSERVE INDEX MARK OF ALL INTEGRATED CIRCUITS;

DIODES D1, D2, AND ZR1;

CAPACITORS C12, C14, C15, C25, C26, C27;

CONNECTORS 10J1, 10J2, 10J4, 10J3, 10J5;

POSITION OF TRANSISTORS Q1, Q2, Q3, Q4.

5. JUMPERS

W3) W2)
W4) W6)
W5) IN W9) OUT
W10) W11)
W12)
W13)

